

# PATENT SPECIFICATION

632,185



Application Date: Dec. 6, 1946. No. 36162/46.

Complete Specification Left: Nov. 7, 1947.

Complete Specification Accepted: Nov. 17, 1949.

Index at acceptance:—Class 40(v), Q1(c:h).

## PROVISIONAL SPECIFICATION

### Improvements in or relating to Radio Receiving Sets and Cabinets therefor

We, KOLSTER-BRANDES LIMITED, a British Company and LAWRENCE JAMES without the use of screws, bolts or similar

#### SPECIFICATION NO. 632,185

By a direction given under Section 17(1) of the Patents Act 1949 this application proceeded in the name of, Kolster Brandes Limited, a British Company of Cray Works, Sidcup, Kent.

THE PATENT OFFICE,  
28th March, 1950

DS 29921/14/3353 150 3/50 R

## ERRATA

### SPECIFICATION No. 632,185.

Page 2, line 4, after "cabinets" insert  
"together, or other means might be  
adopted such as a metal band passing  
around the two half-cabinets"

Page 3, line 57, for "Lawrence" read  
"Laurence"

THE PATENT OFFICE,  
13th March, 1950.

ducing the whole cabinet and furthermore that only half the cabinet is moulded at one operation. Thus the mould is smaller in size and simpler in construction and in use in the normal manner of construction whereby the whole cabinet except for a back cover is moulded in one operation.

Another advantage of this invention is that it provides simple and rapid means of installing the complete chassis within

Holes 6 are also provided in suitable flange like portions 7 of the half-cabinets and when the two half-cabinets are closed together to form a complete cabinet bolts 85 8 are passed through the corresponding holes 6 in the two half-cabinets and nuts 9 are screwed onto the said bolts and tightened up to hold the two half-cabinets together.

It is to be understood that if it is found desirable further holes may be provided

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PROVISIONAL SPECIFICATION

Improvements in or relating to Radio Receiving Sets and  
Cabinets therefor

We, KOLSTER-BRANDES LIMITED, a British Company, and LAURENCE JAMES GRIFFIN, a British Subject, both of Cray Works, Sidcup, Kent, England, do hereby declare the nature of this invention to be as follows:—

The present invention relates to cabinets for radio receivers and particularly to cabinets of the type which are constructed of moulded plastic material.

Large numbers of radio receivers of any one model are required at the present time to satisfy the public demand and it follows that mass production methods are desirable and should be extended to the manufacture of all possible components. Furthermore, it is desirable that the operation of assembly of the various components should be as simple and rapid as possible.

The present invention comprises a cabinet for radio receivers formed of two identically shaped moulded half-cabinets fitting together.

Subordinate features of this invention provide means for clamping the receiver chassis in position within the cabinet consisting of bearing surfaces in the moulded half-cabinets which close firmly over, and in contact with, projecting portions of the chassis when the two halves of the cabinet are held together.

An advantage of forming the cabinet of two identically shaped mouldings is that only one mould is required for producing the whole cabinet and furthermore that only half the cabinet is moulded at one operation. Thus the mould is smaller in size and simpler in construction and in use in the normal manner of construction whereby the whole cabinet except for a back cover is moulded in one operation.

Another advantage of this invention is that it provides simple and rapid means of installing the complete chassis within

the cabinet and of retaining it in position without the use of screws, bolts or similar fixing devices attached to, or passing through, any portion of the chassis itself.

The chassis can therefore be removed from the cabinet with great ease should any adjustment or repair become necessary.

The invention will be better understood from the following description of one embodiment which should be read in conjunction with the accompanying drawings.

Fig. 1 of the accompanying drawings shows an exploded perspective view of one form of the cabinet according to this invention together with a typical chassis.

Fig. 2 shows a front elevation of the cabinet, the rear elevation being identical.

Fig. 3 shows a part section through line X—X on Figure 2.

In Fig. 1 reference 1 and 2 are identical moulded hollow half-cabinets 70 which can be fitted together without overlap so as to abut along their plane edges 3, shown in the half-cabinet 2. Peg shaped projections 4 and holes 5 are moulded as parts of the half-cabinets and 75 when the two half-cabinets are pressed together with their plane edge surfaces 3 in contact, the pegs 4 fit into the holes 5 thus preventing any lateral movement of the half-cabinets with respect to one another.

Holes 6 are also moulded in suitable flange like portions 7 of the half-cabinets and when the two half-cabinets are closed together to form a complete cabinet bolts 85 8 are passed through the corresponding holes 6 in the two half-cabinets and nuts 9 are screwed onto the said bolts and tightened up to hold the two half-cabinets together.

It is to be understood that if it is found desirable further holes may be provided

[F]

in suitable positions in the half-cabinets to enable further bolts and nuts to be employed for holding the two half-cabinets and having its ends suitably 5 fastened together.

When the two half-cabinets are closed together the join where the surfaces 3 are in contact would be visible.

For appearances sake rebates 10 are 10 provided adjacent to the surfaces 3 and a fillet 11 of rubber or other suitable material is fitted into said rebates. This fillet may be coloured as desired for decorative purposes.

15 In order to allow access to the control knobs and tuning scale of the receiver, and to provide means of connecting the earth and antenna and power supply to the receiver, suitably shaped apertures 20 are provided in the moulded half-cabinets. These apertures 12 are shown in Figs. 1 and 2 as rectangular "windows" but they can be made of any other suitable shape.

25 For the purpose of showing how the chassis is fitted into the cabinet a completely assembled receiver chassis 13 is shown in Fig. 1. Details of the actual receiver and chassis are only described 30 where they affect the mode of mounting the chassis within the cabinet.

On the front of the chassis 13 there is fixed a plate 14 behind which is mounted a cone loud speaker, the open end of 35 which cone is attached to the back of said plate by means of screws 15. A portion 16, shown as part of a circle, is cut out from the plate 14 so that the plate forms the usual baffle for the cone loud speaker.

40 In front of plate 13 there is mounted a rectangular panel 17 carrying any necessary control knobs such as those shown at 18 and 19 and a scale 20 on which the wave length to which the receiver is tuned 45 is indicated in known manner.

The length and width of the rectangular panel 17 are slightly greater than the corresponding dimensions of the window aperture 12 and panel 17 is so 50 positioned on the chassis that when the complete chassis, carrying with it said panel, is pressed forward into the front half-cabinet 1 the said panel registers with the window aperture 12 and a small 55 margin around the edge of the front surface of panel 17 rests against a specially provided flat portion of the inner surface of the front half-cabinet 1 immediately surrounding the window aperture 12.

60 This flat surface can be seen at 21 in rear half-cabinet 2. When therefore the complete chassis is pressed forward into the front half-cabinet the controls 18 and 19 will project through the aperture 12 65 and the tuning scale 20 will be visible.

The cut out portion 16 in plate 14 will be close to the upper part of the inner surface of the front half-cabinet 1.

Referring now to Figs. 2 and 3 it can be seen that apertures 22 are provided in 70 the half-cabinets under the louvres 23. These apertures allow the sound waves produced by the loud speaker to pass freely out of the cabinet and also serve to provide ventilation for the interior of 75 the cabinet.

Turning again to Fig. 1 it can be seen that a panel 24, which is of substantially the same length and width as panel 17 is mounted on the rear of the chassis 13 and 80 this panel is so positioned that when the complete chassis is pressed backward into the rear half-cabinet 2 the panel 24 will register with the window aperture 12, and a small margin around the edge of the 85 rear surface of the panel 24 will rest against the flat surface 21 in the rear half-cabinet. The panel 24 serves to carry suitable means of making connections between the receiver and leads connecting 90 to an antenna, to earth and to a source of power supply. Thus there are shown an antenna connection 25, an earth connection 26 and a power supply connection 27 all of which can be connected to panel 24 95 by means of plugs and sockets or in any known way.

It will be seen that as shown in Fig. 1 the plate 14 and the panels 17 and 24 do not lie in planes which are perpendicular 100 to the plane of the base 28 of the half-cabinets. For appearance sake it is desirable to make the exterior surfaces of the complete cabinet slope slightly inwards from the base towards the top and the 105 angle of mounting of the said plate and said panels is selected to conform to the angle of slope adopted for the front and rear of the cabinet.

It can be seen that provided the distances between points on the outer surfaces of panels 17 and 24 respectively are equal to the distances between corresponding points on the flat surfaces 21 in the two half-cabinets the chassis will be locked in 115 position when the two halves of the cabinet are closed over it and the bolts and nuts 8 and 9 are in position and tightened up. In order to ensure that the chassis is firmly held in position within 120 the cabinet however it will usually be found preferable to provide some means of clamping it in position associated with the main body of the chassis rather than to depend on panels 17 and 24 which then 12 need only be fairly lightly attached to the chassis. One such means is illustrated in Fig. 1. On the end plate 29 of the chassis a lug 30 projecting at right angles to said end plate is provided. This lug can be 130

provided by welding or rivetting an angle piece to the end plate 29 or as illustrated by cutting the metal of the end plate along one long and two short sides of a rectangle 31 and pressing the partially cut out rectangle of metal outwards through a right angle along the uncut side of said rectangle.

A similar lug (not shown) is provided at the far end of the chassis. Within the moulded half-cabinets there are provided fins 32 integral with the moulding, terminating in flat end surfaces 33. The plane passing through the flat end surfaces 33 is perpendicular to the plane of the base 28 of the half-cabinets. The flat end surfaces 33 are slightly set in from the plane edges 3 of the half-cabinets. When the half-cabinets are closed together over the complete chassis the lugs 30 are held between the flat end surfaces 33 of the two half-cabinets, the lugs at both ends of the chassis being so held. Thus the chassis is firmly clamped in position when the two half-cabinets are held together by the bolts and nuts 8 and 9.

In order to allow some manufacturing tolerance in the various dimensions and to ensure that the lugs 30 are firmly gripped between the flat bearing surfaces

33 said lugs are preferably covered with a padding 34 of resilient material such as rubber or felt.

Although in the embodiment described herein the means provided for holding the chassis in position consists of lugs on the end-plates of the chassis clamped between suitable bearing surfaces provided in the moulded half-cabinets, bearing surfaces in the half-cabinets might be provided to clamp lugs or projections on the chassis of a different shape from that described and illustrated and differently positioned on the chassis. Furthermore bearing surfaces can be provided in the half-cabinets to bear on portions of the chassis not specially provided for the purpose. Padding such as that shown at 34 can be provided on any parts of the chassis which are intended to be held by bearing surfaces provided in the half-cabinets or such padding could be attached to the bearing surfaces in the half-cabinets.

Dated this 6th day of December, A.D. 1946.

ERNEST E. TOWLER,  
Chartered Patent Agent,  
For the Applicants.

#### COMPLETE SPECIFICATION

#### Improvements in or relating to Radio Receiving Sets and Cabinets therefor

We, KOLSTER-BRANDES LIMITED, a British Company, and LAWRENCE JAMES GRIFFIN, a British Subject, both of Cray Works, Sidcup, Kent, England, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

65 The present invention relates to radio receivers and to cabinets therefor and particularly to cabinets of the type which are constructed of moulded plastic material or of pressed metal.

70 Large numbers of radio receivers of any one model are required at the present time to satisfy the public demand and it follows that mass production methods are desirable and should be extended to the manufacture of all possible components. Furthermore, it is desirable that the operation of assembly of the various components should be as simple and rapid as possible.

75 According to one feature the invention provides a radio receiver comprising in

combination a self contained chassis portion carrying the components of the receiver including a loud speaker and tuning controls and connections, two identically shaped cabinet portions adapted to enclose said chassis portion, each of said cabinet portions comprising sound louvres or apertures for the loudspeaker and an aperture or apertures for giving access to the tuning controls and connections, projections being provided on the chassis portion for engagement between the meeting edges of the cabinet portions.

According to another feature of the invention, the invention provides a cabinet for a radio receiver formed of two identically shaped hollow moulded or pressed half-cabinets fitting together along abutting edges provided with holes, the two half cabinets being located with respect to one another in the finished cabinets by means of pegs in certain of said holes.

80 The receiver chassis may be clamped in position within the cabinet by means of bearing surfaces in the moulded or

pressed half-cabinets which close firmly over, and in contact with, projecting portions of the chassis when the two halves of the cabinet are held together.

5 An advantage of forming the cabinet of two identically shaped mouldings or pressings is that only one tool is required for producing the whole cabinet and furthermore that only half the cabinet is 10 made at one operation. Thus the tool is smaller in size and simpler in construction and in use than in the normal manner of construction whereby the whole cabinet except for a back cover is 15 made in one operation.

Another advantage of this invention is that it provides simple and rapid means of installing the complete chassis within the cabinet and of retaining it in position without the use of screws, bolts or similar fixing devices attached to, or passing through any portion of the chassis 20 itself.

The chassis can therefore be removed 25 from the cabinet with great ease should any adjustment or repair become necessary.

The invention will be better understood 30 from the following description of one embodiment which should be read in conjunction with the drawings accompanying the Provisional Specification, in which:—

Fig. 1 shows an exploded perspective 35 view of one form of radio receiver according to this invention including a typical chassis and two identically shaped cabinet portions.

Fig. 2 shows a front elevation of the 40 cabinet, the rear elevation being identical.

Fig. 3 shows a part section through line X—X of Figure 2.

In Fig. 1 references 1 and 2 are identical moulded or pressed hollow half-cabinets 45 which can be fitted together without overlap so as to abut along their plane edges 3, shown in the half-cabinet 2. Peg shaped projections 4 and holes 5 are provided as integral parts of the half-cabinets 50 and when the two half-cabinets are pressed together with their plane edge surfaces 3 in contact, the pegs 4 fit into the holes 5 thus preventing any lateral movement of the half-cabinets 55 with respect to one another.

Holes 6 are also provided in suitable flange-like portions 7 of the half-cabinets and when the two half-cabinets are closed together to form a complete cabinet bolts 60 8 are passed through the corresponding holes 6 in the two half-cabinets and nuts 9 are screwed onto the said bolts and tightened up to hold the two half-cabinets together.

65 It is to be understood that if it is found

desirable further holes may be provided in suitable positions in the half-cabinets to enable further bolts and nuts to be employed for holding the two half-cabinets together, or other means might 70 be adopted such as a metal band passing around the two half-cabinets and having its ends suitably fastened together.

When the two half-cabinets are closed together the join where the surfaces 3 are 75 in contact would be visible.

For appearances sake rebates 10 are provided adjacent to the surfaces 3 and a fillet 11 of rubber or other suitable material is fitted into said rebates. This 80 fillet may be coloured as desired for decorative purposes.

In order to allow access to the control knobs and tuning scale of the receiver, and to provide means of connecting the 85 earth and antenna and power supply to the receiver, suitably shaped apertures are provided in the half-cabinets. These apertures 12 are shown in Figs. 1 and 2 as 90 rectangular "windows" but they can be 95 made of any other suitable shape.

For the purpose of showing how the chassis is fitted into the cabinet a completely assembled receiver chassis 13 is shown in Fig. 1. Details of the actual 95 receiver and chassis are only described where they affect the mode of mounting the chassis within the cabinet.

On the front of the chassis 13 there is fixed a plate 14 behind which is mounted 100 a cone loud speaker, the open end of which cone is attached to the back of said plate by means of screws 15. A portion 16, shown as part of a circle, is cut out from the plate 14 so that the plate forms the 105 usual baffle for the cone loud speaker. In front of plate 13 there is mounted a rectangular panel 17 carrying any necessary control knobs such as those shown at 18 and 19 and a scale 20 on which the wave 110 length to which the receiver is tuned is indicated in known manner.

The length and width of the rectangular panel 17 are slightly greater than the corresponding dimensions of the window 115 aperture 12 and panel 17 is so positioned on the chassis that when the complete chassis, carrying with it said panel, is pressed forward into the front half-cabinet 1 the said panel registers with 120 the window aperture 12 and a small margin around the edge of the front surface of panel 17 rests against a specially provided flat portion of the inner surface of the front half-cabinet 1 immediately 125 surrounding the window aperture 12.

This flat surface can be seen at 21 in rear half-cabinet 2. When therefore the complete chassis is pressed forward into the front half-cabinet the controls 18 and 130

19 will project through the aperture 12 and the tuning scale 20 will be visible. The cut-out portion 16 in plate 14 will be close to the upper part of the inner surface of the front half-cabinet 1.

Referring now to Figs. 2 and 3 it can be seen that apertures 22 are provided in the half-cabinets under the louvres 23. These apertures allow the sound waves produced by the loud speaker to pass freely out of the cabinet in all directions and also serve to provide ventilation for the interior of the cabinet.

Turning again to Fig. 1 it can be seen that a panel 24, which is of substantially the same length and width as panel 17 is mounted on the rear of the chassis 13 and this panel is so positioned that when the complete chassis is pressed backward into the rear half-cabinet 2 the panel 24 will register with the window aperture 12, and a small margin around the edge of the rear surface of the panel 24 will rest against the flat surface 21 in the rear half-cabinet. The panel 24 serves to carry suitable means of making connections between the receiver and leads connecting to an antenna, to earth and to a source of power supply. Thus there are shown an antenna connection 25, an earth connection 26 and a power supply connection 27 all of which can be connected to panel 24 by means of plugs and sockets or in any known way.

It will be seen that as shown in Fig. 1 the plate 14 and the panels 17 and 24 do not lie in planes which are perpendicular to the plane of the base 28 of the half-cabinets. For appearance sake it is desirable to make the exterior surfaces of the complete cabinet slope slightly inwards from the base towards the top, and the angle of mounting of the said plate and said panels is selected to conform to the angle of slope adopted for the front and rear of the cabinet.

It can be seen that provided the distances between points on the outer surfaces of panels 17 and 24 respectively are equal to the distances between corresponding points on the flat surfaces 21 in the two half-cabinets the chassis will be locked in position when the two halves of the cabinet are closed over it and the bolts and nuts 8 and 9 are in position and tightened up. In order to ensure that the chassis is firmly held in position within the cabinet however it will usually be found preferable to provide some means of clamping it in position associated with the main body of the chassis rather than to depend on panels 17 and 24 which then need only be fairly lightly attached to the chassis. One such means is illustrated in Fig. 1. On the end plate 29 of the chassis

a lug 30 projecting at right angles to said end plate is provided. This lug can be provided by welding or rivetting an angle piece to the end plate 29 or as illustrated by cutting the metal of the end plate 70 along one long and two short sides of a rectangle 31 and pressing the partially cut out rectangle of metal outwards through a right angle along the uncut side of said rectangle. 75

A similar lug (not shown) is provided at the far end of the chassis. Within the half-cabinets there are provided fins 32 integral with the body of the cabinet, terminating in flat end surfaces 33. The plane passing through the flat end surfaces 33 is perpendicular to the plane of the base 28 of the half-cabinets. The flat end surfaces 33 are slightly set in from the plane edges 3 of the half-cabinets. 85 When the half-cabinets are closed together over the complete chassis the lugs 30 are held between the flat end surfaces 33 of the two half-cabinets, the lugs at both ends of the chassis being so held. 90 Thus the chassis is firmly clamped in position when the two half-cabinets are held together by the bolts and nuts 8 and 9. 95

In order to allow some manufacturing tolerance in the various dimensions and to ensure that the lugs 30 are firmly gripped between the flat bearing surfaces 33 said lugs are preferably covered with a padding 34 of resilient material such as 100 rubber or felt.

Although in the embodiment described herein the means provided for holding the chassis in position consists of lugs on the end plates of the chassis clamped between 105 suitable bearing surfaces provided in the half-cabinets, bearing surfaces in the half-cabinets might be provided to clamp lugs or projections on the chassis of a different shape from that described and 110 illustrated and differently positioned on the chassis. Furthermore bearing surfaces can be provided in the half-cabinets to bear on portions of the chassis not specifically provided for the purpose. Padding 115 such as that shown at 34 can be provided on any parts of the chassis which are intended to be held by bearing surfaces provided in the half-cabinets or such padding could be attached to the bearing surfaces in the half-cabinets. 120

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that what we claim 125 is:—

1. A radio receiver comprising in combination a self contained chassis portion carrying the components of the receiver including a loud speaker and tuning con- 130

5 trols and connections, two identically shaped cabinet portions adapted to enclose said chassis portion, each of said cabinet portions comprising sound louvres or apertures for the loud speaker and an aperture or apertures for giving access to the tuning controls and connections, projections being provided on the chassis portion for engagement between the meeting 10 edges of the cabinet portions.

15 2. A radio receiver according to claim 1 in which said chassis is provided with panels on two opposite sides for alignment with said apertures in said cabinet portions.

20 3. A cabinet for a radio receiver formed of two identically shaped hollow moulded or pressed half-cabinets fitting together along abutting edges provided with holes, the two half-cabinets being located with respect to one another in the finished cabinets by means of pegs in certain of 25 said holes.

25 4. A cabinet for a radio receiver according to claim 3 in which the said pegs and holes are formed in the moulding or pressing of said half-cabinets.

30 5. A cabinet for a radio receiver according to claims 3 or 4 in which the two half-cabinets are fastened together by means of nuts and bolts, the holes for said bolts being formed in the moulding or pressing of said half-cabinets.

35 6. A cabinet for a radio receiver according to any of the claims 3 to 5 in which means are provided for clamping the receiver chassis in position within the cabinet comprising the provision of bearing surfaces in the half-cabinets so positioned that they close firmly over, and in contact with projecting portions of the chassis when the two halves of the cabinet are held together.

40 7. A cabinet for a radio receiver

according to claim 6 in which a suitable padding material such as rubber or felt is provided between said bearing surfaces and said projecting portions.

50 8. A cabinet for a radio receiver according to claims 6 or 7 in which said projecting portions are lugs standing out at right angles from the end plates of the receiver chassis.

55 9. A cabinet for a radio receiver formed of two identically shaped hollow moulded or pressed half-cabinets fitting together along abutting edges one of the half-cabinets being provided with an aperture providing access to the controls of the receiver and to the tuning scale and the other half cabinet being provided with an identical aperture to permit of connections being made between the receiver and the antenna and earth leads and the power supply.

60 10. A cabinet for a radio receiver according to any of the claims 3 to 9 in which apertures are provided in the form of louvres to permit acoustic waves to pass out from the cabinet and to allow for 70 ventilation of the interior of the cabinet.

65 11. The radio receiver comprising in combination a self contained chassis portion carrying the electrical components of the receiver and a cabinet formed of two identically shaped inter-engaging portions adapted to enclose said chassis portion substantially as described herein with reference to the drawings accompanying the Provisional Specification.

70 12. The cabinet for a radio receiver substantially as described herein with reference to the drawings accompanying the Provisional Specification.

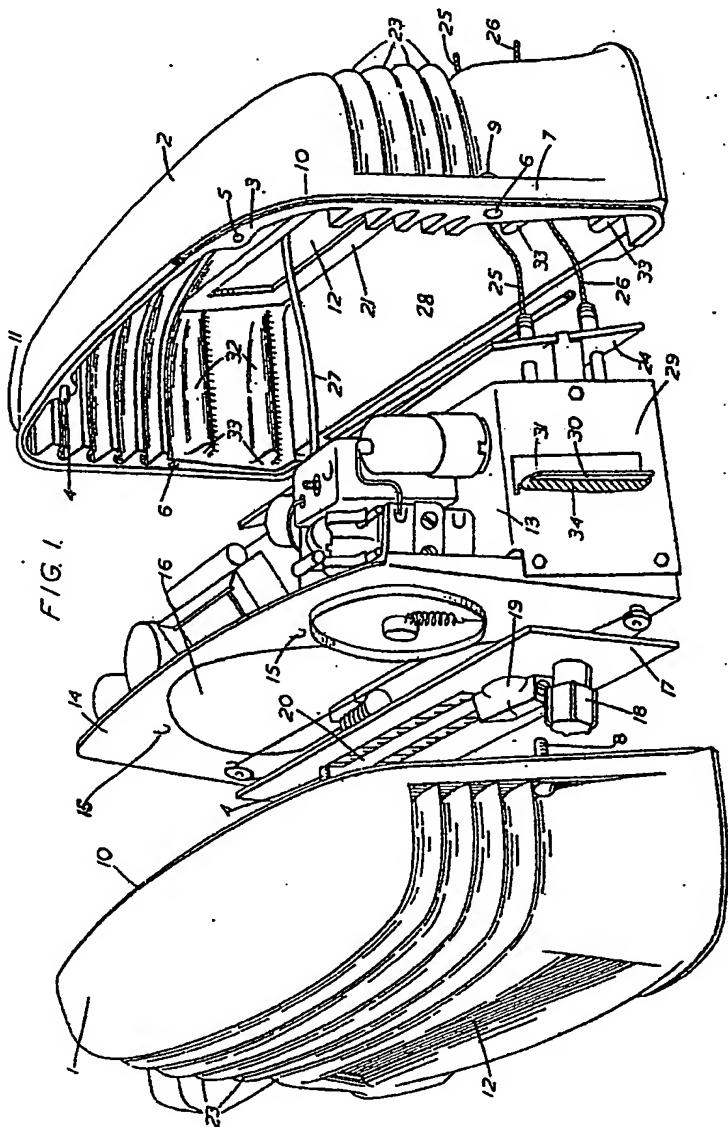
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 ERNEST E. TOWLER,  
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 Agent for the Applicants.

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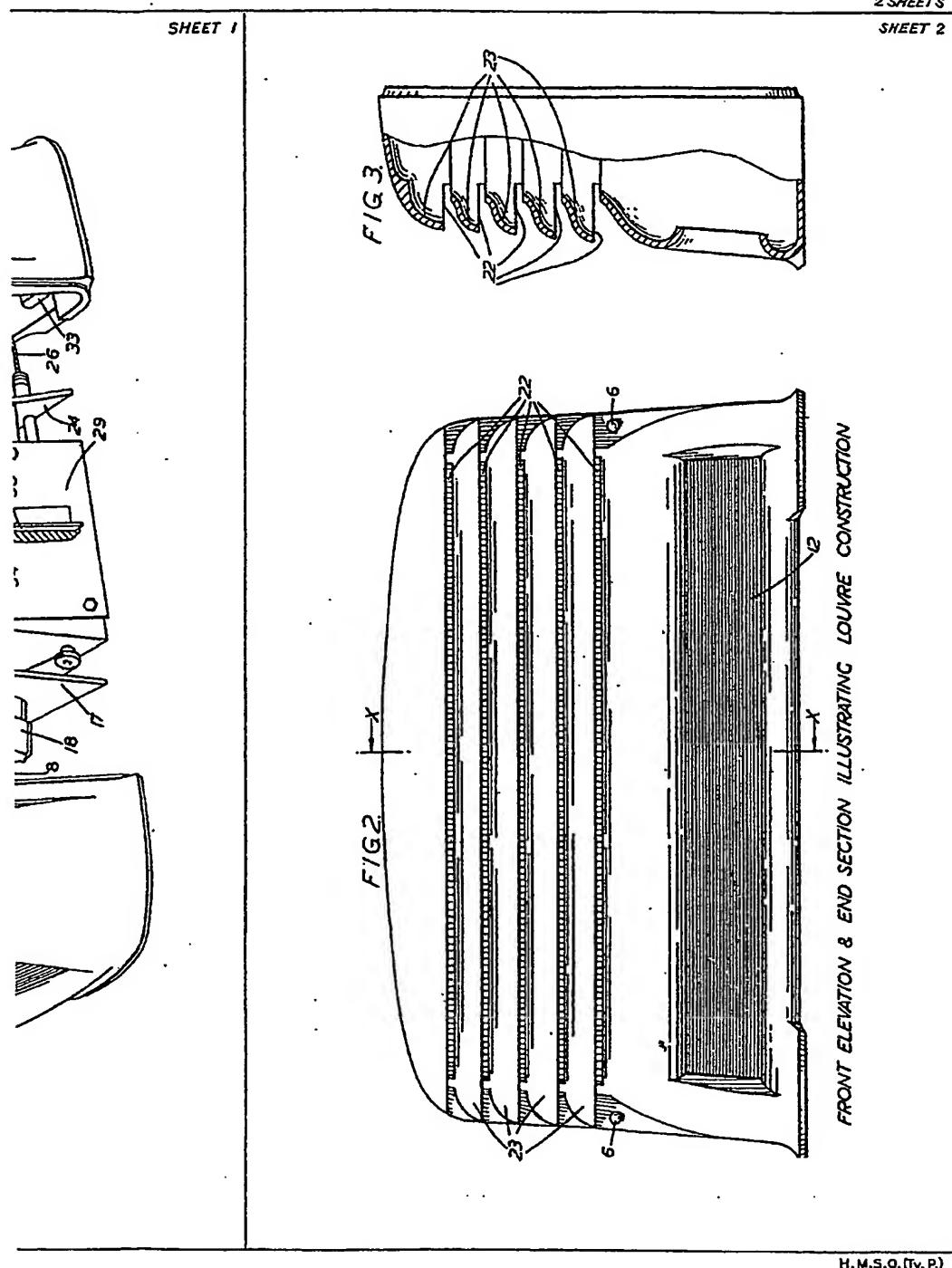
632185 PROVISIONAL SPECIFICATION

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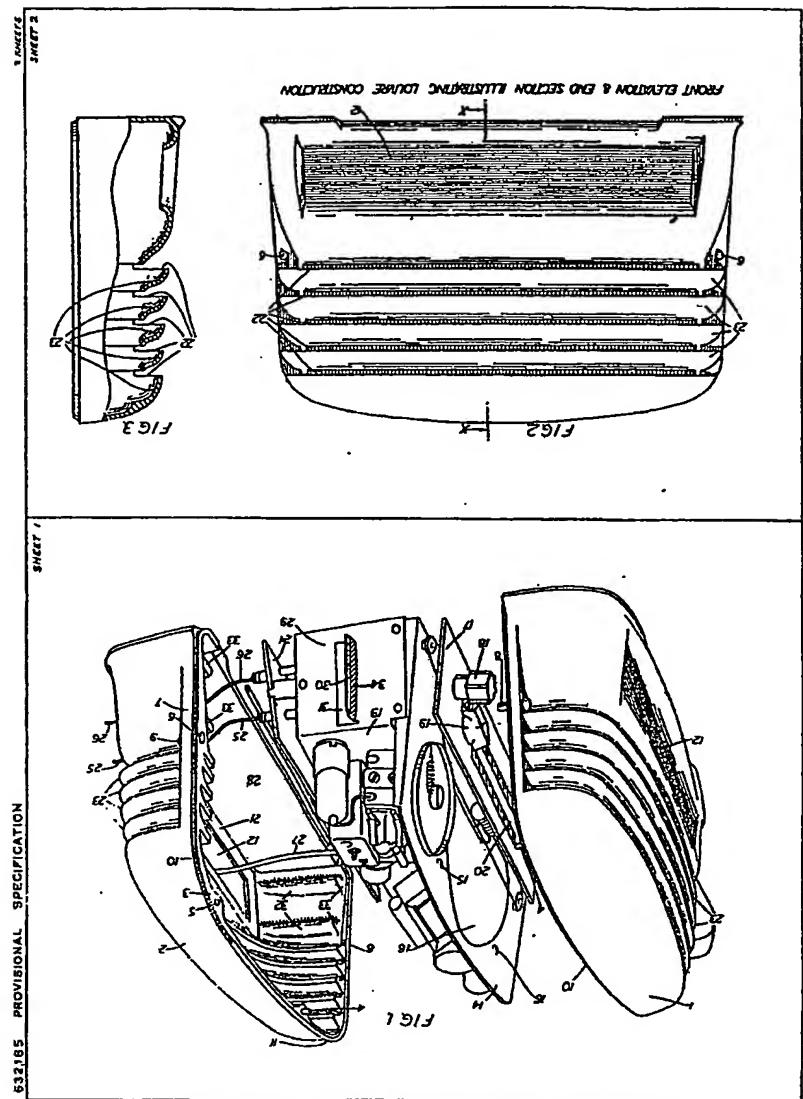
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